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Progress Report on
Evaluation of Commercial Utility of ERTS-A
Imagery in Structural Reconnaissance for
Minerals and Petroleum

(E73-10523) EVALUATION OF COMMERCIAL
UTILITY OF ERTS-A IMAGERY IN STRUCTURAL
RECONNAISSANCE FOR MINERALS AND PETROLEUM
Progress Report, 1 (Texas Instruments,
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ERTS-A Proposal Number
MMC-083

Principal Investigator
PR-181

Reporting Period
March 1, 1973 through April 30, 1973

Prepared by
Texas Instruments Incorporated

May 8, 1973

I PROGRAM OBJECTIVE

The objective of this study is to evaluate, from the commercial viewpoint, the feasibility of ERTS-A imagery as a medium for interpreting and mapping large-scale structural lineaments in both Precambrian Shield areas and basins containing younger sediments. Successful completion of this program could lead to Continental Plate tectonic interpretation from purchased ERTS-type imagery which would be useful to mining or petroleum companies for guiding and/or interpreting reconnaissance prospecting operations.

II SUMMARY OF WORK (March 1 - April 30, 1973)

During the week of March 5th Dr. Donald F. Saunders and Mr. Gilbert E. Thomas attended the ERTS-1 Symposium in Washington and presented our initial findings in Area 3 (New Mexico-West Texas).

At the end of March our Type II Report was submitted covering activities and results through the first six months of our contract period. This report included work performed between the dates of January 1 through February 28, 1973. Therefore no Type I report was submitted for this time period.

To offset the troublesome density problems on the 9-inch prints received to date, new prints were generated from 9-inch positive transparencies to replace the unusable prints in three study areas. Consequently, final mosaics have been prepared and lineament interpretations are nearly complete for Areas 1, 2 and 3 (i.e., Montana, Colorado and the New Mexico-West Texas areas).

III WORK SCHEDULE

Assuming incremental funding is forthcoming, final interpretations will be completed in Areas 1, 2 and 3 and comparisons

between lineaments and known mineral deposits will be made by the end of May.

As soon as a complete set of acceptable positive prints or transparencies are received for Areas 4 and 5 (i.e., Superior Province of Canada and Northern Alaska) final mosaics will be prepared and lineament interpretations will begin.

A limited zone within one of the study areas will be selected for seasonal comparisons on Band 6 imagery. Interpretations will then be performed to determine the effects of seasonal change on lineament detection. This work is expected to be completed by mid-June.

A limited zone will also be selected to compare the four MSS bands for suitability in lineament detection. This work is expected to be complete by the end of June.

Work is expected to begin on the final report at the end of July with submission of the approval draft to NASA in August.

IV PROBLEMS

No incremental funding was received at the end of April as specified in our contract. However, it is our understanding that this problem will be cleared up by mid-May.

Timely delivery of useful prints continues to be a problem. Delivery of back orders of prints and positive transparencies also seems to be spotly. However, if we soon receive a complete set of positive transparencies for Areas 4 and 5 we will make our own prints and through this procedure our basic requirements will be met.

V PLANS FOR NEXT REPORTING PERIOD

If suitable positive transparencies are received, all mosaics and initial analyses should be completed by the end of June.

VI SIGNIFICANT RESULTS

The only area that has been analyzed to date is Area 3 where results have already been reported. However, work progressing in Areas 1 and 2 seems to indicate a good correlation between lineament zones previously reported, mineralized areas and lineaments currently being picked from the ERTS imagery. There also appear to be many lineaments on ERTS imagery in these areas which have not been reported in any other literature.

VII PUBLISHED ARTICLES

None during this reporting period.

VIII CHANGE RECOMMENDATIONS

None during this reporting period.

IX CHANGES IN STANDING ORDER FORMS

None

X DESCRIPTOR FORM INCLUSIONS

None

XI PERSONNEL CHANGES

None

XII ADEQUACY OF FUNDS

We are currently out of funds until incremental funding is received.